

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (currently amended): An image processing method for eliminating noise from electronic data of an input image by smoothing the electronic data, the method comprising:
~~an intensity computation step for computing a smoothing intensity to be used for smoothing the electronic data, based on a first~~ from intensity of a predetermined color component output from a pixel of interest and ~~from a second~~ intensity of predetermined color components output from pixels surrounding the pixels of interest, constituting a matrix centered on the pixel of interest; and

wherein, in the computing step, the smoothing intensity is ~~set~~ computed on the basis of the predetermined color component and the frequency of noise, ~~and in such a manner that~~
~~wherein~~ when the intensity of the predetermined color component output from the pixel of interest is high, a rate at which the intensity of the predetermined color component output from the pixel of interest is to be distributed to surrounding pixels constituting the matrix is set to a large value, and when the intensity of the predetermined color component output from the pixel of interest is low, the rate at which the intensity of the predetermined color component output from the pixel of interest is to be distributed to surrounding pixels constituting the matrix is set to a small value.

2. (currently amended): The image processing method according to claim 1, ~~further comprising: wherein smoothing the electronic data by distributing the intensity of a pixel of interest is based on a filter information selection step of selecting predetermined filter information selected on the basis of the smoothing intensity ~~computed in the intensity computation step~~; and~~

~~a smoothing step of smoothing the electronic data on the basis of the filter information computed in the filter information preparation step.~~

3. (currently amended): The image processing method according to claim 1, further comprising:

~~a filter information preparation step of preparing filter information on the basis of the smoothing intensity ~~computed in the intensity computation step~~; and~~

~~a smoothing step of smoothing the electronic data on the basis of the filter information prepared ~~selected in the filter information selection step.~~~~

4. (currently amended): A recording medium storing an image processing program for causing a computer to perform processing for eliminating noise from electronic data pertaining to an image entered by way of input unit, by smoothing the electronic data, the computer being caused by the image processing program to perform:

~~an intensity computation step for computing a smoothing intensity ~~to be used for smoothing the electronic data, from the~~ based on a first intensity of a predetermined color component output from a pixel of interest from among a plurality of pixels constituting an image~~

input by way of the input unit and ~~from a second~~ the intensity of predetermined color components output from pixels surrounding the pixel of interests constituting a matrix centered on the pixel of interest; and

a smoothing step for smoothing the electronic data through use of the computed smoothing intensity and outputting the smoothed electronic data;

~~wherein~~ wherein, in the computing step, smoothing intensity is computed ~~set~~ on the basis of a relationship between the intensity of the a predetermined color component and the frequency of noise in such a manner that, ~~and wherein~~ when the intensity of the a predetermined color component output from the pixel of interest is high, a rate at which the intensity of the predetermined color component output from the pixel of interest is to be distributed to surrounding pixels constituting the matrix is set to a large value, and when the intensity of the predetermined color component output from the pixel of interest is low, the rate at which the intensity of the predetermined color component output from the pixel of interest is to be distributed to surrounding pixels constituting the matrix is set to a small value.

5. (currently amended): The recording medium according to claim 4, further comprising:
~~wherein the computer is caused to perform~~

a filter information selection step of selecting predetermined filter information, on the basis of the smoothing intensity ~~computed in accordance with the intensity computation procedure,~~ and,

wherein, in the smoothing step, the electronic data are smoothed and output through use of the predetermined filter information, ~~selected through the filter information selection procedure.~~

6. (currently amended): The recording medium according to claim 4, further comprising: ~~wherein the computer is caused to perform~~

a filter information preparation step of preparing filter information on the basis of the smoothing intensity computed in the intensity computation step, and

wherein, in the smoothing step, the electronic data are smoothed and output through use of the prepared filter information ~~prepared through the filter information preparation procedure.~~

7. (currently amended): An image processing apparatus comprising:

an image input unit into which image information is input and which can output the image information as electronic data; and

an intensity computation unit for computing a smoothing intensity ~~to be used for smoothing the electronic data, from the~~ based on an intensity of a predetermined color component included in the electronic data output from the image input unit,

wherein the smoothing intensity is ~~set~~ computed on the basis of ~~at~~ the predetermined color component and the frequency of noise in such a manner that, ~~and wherein~~ when the intensity of ~~at~~ the predetermined color component output from the pixel of interest is high, a rate at which the intensity of the predetermined color component output from the pixel of interest is to be distributed to surrounding pixels constituting the matrix is set to a large value, and when the

intensity of the predetermined color component output from the pixel of interest is low, the rate at which the intensity of the predetermined color component output from the pixel of interest is to be distributed to surrounding pixels constituting the matrix is set to a small value.

8. (currently amended): The image processing apparatus according to claim 7, further comprising:

a ~~storage~~~~recording section~~~~device~~ in which predetermined filter information is stored~~set beforehand on the basis of smoothing intensity computed by the intensity computation unit is recorded~~;

a filter information selection ~~circuit~~~~unit~~ for selecting specific filter information from the predetermined filter information ~~recorded in the recording section~~ on the basis of the smoothing intensity computed by the intensity computation unit;

a smoothing ~~circuit~~~~unit~~ for smoothing the electronic data output from the image input unit on the basis of the specific filter information ~~selected by the filter information selection unit~~;

and

a writing ~~circuit~~~~unit~~ for recording the electronic data smoothed by the smoothing unit into the ~~storage device~~~~recording section~~.

9. (currently amended): The image processing apparatus according to claim 7, further comprising:

a filter information preparation ~~circuit~~~~unit~~ for preparing filter information ~~on the basis of~~on the smoothing intensity ~~computed by the intensity computation unit~~;

a smoothing unit for smoothing the electronic data ~~output from the image input unit~~ on the basis of the prepared filter information ~~prepared by the filter information preparation unit~~;

a storage device~~recording section capable of~~ recording the electronic data smoothed by the smoothing circuit~~unit~~; and

a writing circuit~~unit~~ for writing the electronic data smoothed by the smoothing circuit~~unit~~ into the storage device~~recording section~~.

10. (new): An image processing apparatus, comprising:

a separation circuit for separating at least one color component from a pixel of interest in electronic data comprising an image;

a color intensity circuit for determining a luminance component based on an intensity of at least one color component separated by the separation circuit;

a filter preparation circuit for determining a smoothing intensity on the basis of the luminance component; and

a smoothing circuit for smoothing the electronic data by distributing the intensity of the pixel of interest to a predetermined number of pixels surrounding the pixel of interest in the electronic data comprising the image in proportion to the smoothing intensity.

11. (new): The image processing apparatus according to claim 10, wherein a level of noise is determined based on the luminance component and when the level of noise is high, a rate at which the intensity of the predetermined color component output from the pixel of interest is to be distributed to surrounding pixels constituting the matrix is set to a large value, and when

the level of noise is low, the rate at which the intensity of the predetermined color component output from the pixel of interest is to be distributed to surrounding pixels constituting the matrix is set to a small value.

12. (new): The image processing apparatus according to claim 10, wherein the filter preparation circuit selects predetermined filter information based on the smoothing intensity, wherein the smoothing circuit distributes the intensity of the pixel of interest based on the predetermined filter information.

13. (new): The image processing apparatus according to claim 10, wherein the color components of the pixel of interest comprise cyan, magenta, yellow and green, the luminance component is the average of the intensity of each color component.

14. (new): The image processing apparatus according to claim 10, wherein the color components of the pixel of interest comprise red, yellow and blue components, the luminance component is based on only one component.

15. (new): The image processing apparatus according to claim 12, wherein the predetermined filter information maps the distribution of the intensity of the pixel of interest to a matrix of pixels surrounding the pixel of interest in a predetermined manner based on the smoothing intensity.

16. (new): The image processing apparatus according to claim 7, wherein the smoothing intensity is further based on a second intensity of predetermined color components output from pixels surrounding the pixel of interest, constituting a matrix centered on the pixel of interest.